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Research Article

AN ECONOMIC ANALYSIS OF PRODUCTION OF PEARL MILLET IN JAIPUR DISTRICT OF RAJASTHAN

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ABSTRACT

The present study was conducted in the year 2016-17 with a sample of 120 respondents. The results indicated that the number of respondents who had Graduation education were more in Large size farms followed by large and Small. And it was also observed that the number of illiterates were more in Large size farms followed by medium and Small size of farms. The results indicated that the number of respondents who had Graduation education were more in Large size farms followed by large and Small. And it was also observed that the number of illiterates were more in Large size farms followed by medium and Small size of farms. The average area per hectare holding in small size farms was 0.82ha, medium size was 1.77 ha and in large size farms were 2.72 ha. Total cost of cultivation of Pearl millet for small, medium and large size farms were (Rs.19280.6/ha, Rs.17702.7/ha and Rs.17432.6/ha) respectively. The Gross Returns obtained per hectare by Large size farms were high (Rs.32300/ha) as compare to medium and large size farms (Rs.30600/ha and Rs.28900/ha) respectively, and the Net returns per hectare were highest in Large size farms (Rs.14867.4/ha) as compare to the medium and Small size farms (Rs.12897.3/ha and 9619.4//ha) respectively. Input-output ratio per hectare was highest in large size farms (1:1.85) compare to medium and small size farms (1:1.73 and 1:1.50), and the Marketable surplus for farmers in small, medium and large surplus were (6.06%, 22.52% and 33.93) respectively.

INTRODUCTION

India is the largest producer of pearl millet, both in terms of area (9.1 million hectares) and production (7.3 million tons), with an average productivity of 780 kg/ha during the last 5 years (WOAB, 2010).Pearl millet (*Pennisetum glaucum*) is a nutritious cereal cultivated as rain-fed crop. It has significant potential as feed and food grain in addition to its current use as fodder. Pearl millet grains contain 10 to 12 per cent protein, higher concentration of essential amino acids and higher gross energy. Consequently, its grain is not only used as a food but also used as feed for the poultry, cattle and swine. Pearl millet is also used for extracting the ethanol from its grains and thus it is of industrial use. Its economic importance is significant especially in semi-arid tropical zones of Rajasthan, Gujarat and Haryana in India. Again, its importance in mixed farming is also well documented. Pearl millet is the next most important millet crop in India in terms of area and production after sorghum. India is also considered the secondary centre of origin for pearl millet with many distinct cultivars being grown throughout the Country.

Pearl millet can grow in a wide range of ecological conditions and can still yield well even under unfavorable conditions of drought stress and high temperatures. It is generally grown in warm and hot countries characteristic of the semi-arid environment. Pearl millet is a warm weather crop and grows best at 20 to 28° C. Pearl millet is more tolerant to higher temperatures than probably any other cultivated cereal. The best temperature for the germination of pearl millet seed is 23 to 32° C. Pearl millet seed does not germinate and grow well under cool soil conditions. The optimum rainfall requirement of pearl millet ranges 35-50 cm. But, pearl millet can be grown in areas, which receive less than 35 cm of annual rainfall. Prolonged spells of warm, rainless weather may be detrimental and may lead to reduced crop yields. Pearl millet is one of the toughest; drought tolerant crop and it maintain its popularity in the regions where the weather is very unpredictable.

Therefore study was conducted to assess the 'An Economic Analysis of Production And Marketing of Pearl Millet" in Jaipur district of Rajasthan was undertaken with the following specific objectives.

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1. To study the socio economic profile of Pearl Millet growers in different size farm groups.
2. To find out the Costs and Returns per hectare of Pearl Millet crop in different size farm groups.

RESEARCH METHODOLOGY

The present study was conducted in Jaipur District of Rajasthan, there are thirteen blocks in Jaipur district. Out of which Chomu block was purposively selected due to highest in area and production under Pearl millet crop cultivation. Further, out of Chomu block seven villages were selected. For selection of respondents were categorized into three groups on the basis of area under Pearl millet cultivation in all the selected villages.

1. Small size farm group -having area of cultivation less than 1 ha
2. Medium size farm group- having area of cultivation of 1-2 ha
3. large size farm group- having area of cultivation more than 2ha

10% farms household were selected in all the three size farm groups in each selected village. Altogether total respondents were 120 viz., 58 small respondents, 41 medium respondents and 21 large respondents respectively.

The interview method used for data collection. Interview schedule was divided into major parts. First section included profile of respondents and second section was included question related to economic analysis of production and marketing of pearl millet. Data were analyzed by using Input-Output Ratio (B.C Ratio), Gross income, Marketing cost, Marketable surplus.

RESULT AND DISSCUSSION

The data present in Table-1 reveals that among different size of farms during bearing period, total cost incurred by the small size farms were high (Rs.19280.60/ha) as compared to medium and large size farms (Rs.17702.7/ha and Rs.17432.6/ha). Sample average for total cost was Rs.18418.08/ha in different size of farms group.

The cost of human labor, fertilizers, and machinery labor were the items of cost with major share in the variable costs, because most of the operations like harvesting, and weeding were human labor intensive operations. The distribution of pattern of operational cost under various inputs revealed that cost of human labor was the highest in the large size farms (Rs.1800./ha), compared to medium and small size farms (each Rs.1260/ha) respectively.

As Pearl millet would respond well with chemical fertilizer so the cost of farm yard manure used was ranged from Rs.600 (Large size farms) to Rs.800 (small size farms). Whereas the expenditure on fertilizers was the highest (Rs.1100/ha) for small size farms as compared to medium size farms (Rs.975/ha) and large size farms (Rs.900/ha) respectively. Sample average for depreciation on fixed resources was Rs.645.41 interest on working capital Rs.559.68, interest on fixed capital was Rs.767.54 Land revenue paid to government was Rs.30 in different size of farms group.

The cost of rental value of own land was Rs.7000/ha in different size of farms group.

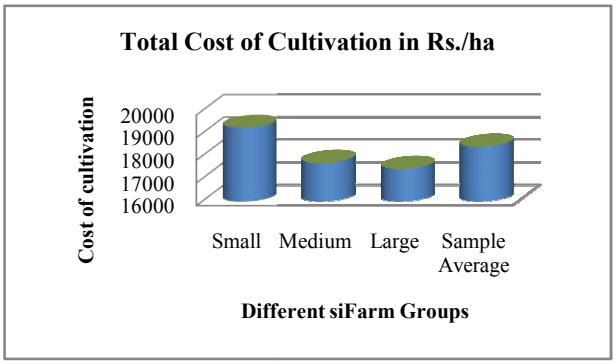

Fig 1 Total cost of cultivation in Pearl millet crop per hectare in different Size of Farms Group

Table1 Cost of Cultivation of Pearl millet crop per hectare in different Size of Farms Group, during gestation period.
Number of Respondents = 120
S M L= 58+ 41+ 21 =120
(Value in Rupees/hectare)

Sl. No	Particulars of Farm Operations	Size of Farms Groups			Sample Average
		Small	Medium	Large	
1	Hired Human Labor Charges	1260 (6.54)	1260 (7.12)	1800 (10.33)	1354.50 (7.35)
2	Bullock Labor Charges	1500 (7.78)	1200 (6.78)	1200 (6.88)	1345.00 (7.30)
3	Machinery Labor Charges	2000 (10.37)	1500 (8.47)	1500 (8.60)	1741.66 (9.46)
4	Cost of Seedlings	600 (3.11)	550 (3.11)	500 (2.87)	565.41 (3.07)
5	Cost of Farm Yard Manure	800 (4.15)	650 (3.67)	600 (3.44)	713.75 (3.88)
6	Cost of chemical Fertilizers	1100 (5.71)	975 (5.51)	900 (5.16)	1022.29 (5.55)
7	Cost of Irrigation charges	-	200 (1.12)	200 (1.14)	103.33 (0.56)
8	Cost of Plant Protection charges	-	-	-	-
9	Miscellaneous charges	150 (0.78)	150 (0.85)	150 (0.86)	150 (0.81)
10	Interest on Working Capital @ 6-8%	592.80 (3.07)	518.80 (2.93)	548.00 (3.14)	559.68 (3.04)
11	Deprecation on Fixed Resources 10%	768 (3.98)	569 (3.21)	456 (2.61)	645.41 (3.50)
12	Land Revenue Paid to Government	30 (0.16)	30 (0.17)	30 (0.17)	30 (0.16)
13	Interest on Fixed Capital @ 10%	779.8 (4.04)	759.9 (4.29)	748.6 (4.29)	767.54 (4.17)
14	Rental Value of Own Land	7000 (36.31)	7000 (39.54)	7000 (40.15)	7000 (38.01)
15	Imputed value of Family Labor charges	2700 (14.00)	2340 (13.22)	1800 (10.33)	2419.50 (13.14)
16	Total Cost of Cultivation	19280.6 (100.00)	17702.7 (100.00)	17432.6 (100.00)	18418.08 (100.00)

Table 2 reveals that Costs and Returns in Pearl millet cultivation in different size of farms group. Among different size of farms groups, the total cost of cultivation incurred by the small farms were high (Rs.19280.6/ha) as compared to medium (Rs.17702.7/ha) and large farms (Rs.17432.6/ha). Sample average for total cost of cultivation was Rs.18418.08/ha in different size of farms group. The gross returns obtained per hectare by large size farms were high (Rs.32300/ha) as compare to medium and small size farms (Rs.30600/ha and Rs.28900/ha) respectively. The net returns

per hectare obtained by large size farms were high (Rs.14867.4/ha) as compared to medium and small size farms (Rs.12897.3/ha and Rs.9619.4/ha) respectively.

The average yield of Pearl millet in different size of farms group was 17.69qtl/ha. The yield was highest in case of large size farms 19qtl/ha as compared to medium 18qtl/ha and small size farms 17qtl/ha respectively. Average cost of production per quintal was Rs.1044.76/qtl. Gross Price per quintal was Rs.1700/qtl.

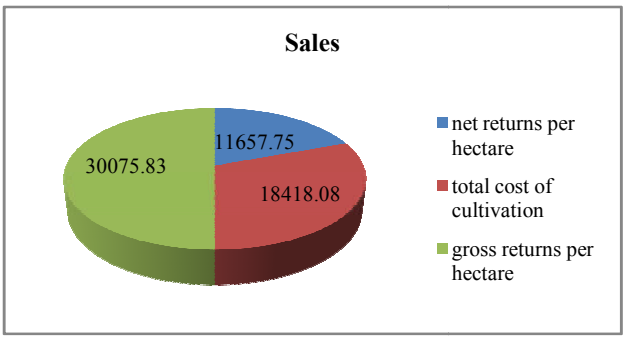

Fig 2 Sample average of Cost and Returns of Pearl millet Production per hectare in different Size of Farms Group.

Table 2 Costs and Returns in Pearl millet crop per hectare in different Size of Farms Group Number of Respondents = 120

S M L= 58+41+21=120
(Value in Rupees / Qtl)

Sl. No	Particulars	Size of Farms Group			Sample
		Small	Medium	Large	Average
1	Total Cost of cultivation	19280.6	17702.7	17432.6	18418.08
2	Yield in Quintal per hectare	17	18	19	17.69
3	Gross Returns per hectare in rupees	28900	30600	32300	30075.83
4	Net Returns per hectare	9619.4	12897.3	14867.4	11657.75
5	Cost of Production per Quintal	1134.15	983.48	917.51	1044.76
6	Price Per Quintal	1700	1700	1700	1700
7	Input and output ratio	1:1.50	1:1.73	1:1.85	1:1.64

Table3 reveal that Cost Concepts on different size of farms group per hectare. Cost A_1 was highest in small size farms (Rs.8800.8/ha) followed by medium size farms (Rs.7602.8/ha) and lowest in large size farms (Rs.7884/ha) respectively. Cost A_2 in small, medium and large size of farms groups was Rs.8800.8/ha, Rs.7602.8/ha and Rs.7884/ha respectively. Cost B was highest in small size farms (Rs.16580.6/ha) as compared to large size farms (Rs.15632.6/ha) and lowest in medium size of farms (Rs.15362.7/ha) respectively.

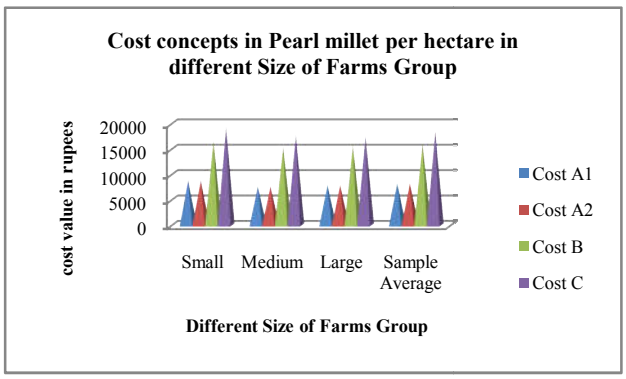

Fig 3 Cost concepts in Pearl millet per hectare in different Size of Farms Group

Cost C was highest in small size farms (Rs.19280.6/ha) and lowest in large size farms (Rs.17432.6/ha). Sample average for Cost A_1, Cost A_2, Cost B and Cost C was Rs.8231.04/ha, Rs.8231.04/ha, Rs.15998.58/ha and Rs.15668.08/ha in different size of farms group.

Table 3 Cost Concepts in Pearl millet crop per hectare in different Size of Farms Group Number of Respondents = 120

S M L= 58+ 41+ 21 =120
(Value in Rupees)

Sl. No	Cost Concepts	Size of Farms Group			Sample
		Small	Medium	Large	Average
1	Cost A_1	8800.8	7602.8	7884.0	8231.04
2	Cost A_2	8800.8	7602.8	7884.0	8231.04
3	Cost B	16580.6	15362.7	15632.6	15998.58
4	Cost C	19280.6	17702.7	17432.6	18418.08

Table 4 reveals that Measures of Profitability in Pearl millet cultivation in different size of farms group. The gross returns obtained per hectare by large size farms were high (Rs.32300/ha) as compare to medium and small size farms (Rs.30600/ha and Rs.28900/ha) respectively. This makes the sample average for gross returns was 30075.83/ha in different size of farms group. Farm business income in small, medium and large size of farms group was Rs.20099.2/ha, Rs.22997.2/ha and Rs.24416/ha respectively. Sample average for farm business income was Rs.21844.79/ha in different size of farms group. Farm investment income was highest in large size farms (Rs.22616/ha) as compared to medium size farms (Rs.20657.2/ha) and lowest in small size farms (Rs.17399.2/ha) respectively. This makes the sample average for Farm investment income was Rs.19425.29/ha in different size of farms group. The net returns per hectare obtained by large size farms were high (Rs.14867.4/ha) as compared to medium and small size farms (Rs.12897.3/ha and Rs.9619.4/ha) respectively. Sample average of net returns was 11657.75/ha in different size of farms group. Sample average of Family labor income was Rs.14077.25/ha in different size of farms group.

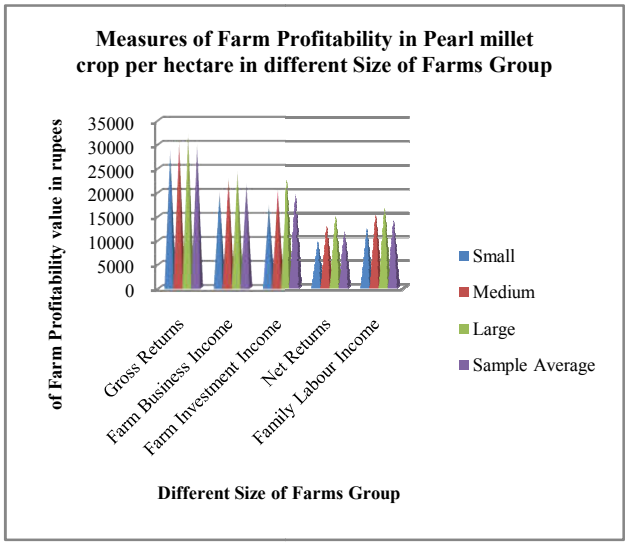

Fig 4 Measures of Farm Profitability in Pearl millet crop per hectare in different Size of Farms Group

Table 4 Measures of Farm Profitability in Pearl millet crop per hectare in different Size of Farms Group
Number of Respondents = 120

S M L= 58+ 41+ 21 =120
(Value in Rupees)

Sl. No	Particulars	Size of Farms group			Sample Average
		Small	Medium	Large	
1	Gross Returns	28900	30600	32300	30075.83
2	Farm Business Income	20099.2	22997.2	24416	21844.79
3	Farm Investment Income	17399.2	20657.2	22616	19425.29
4	Net Returns	9619.4	12897.3	14867.4	11657.75
5	Family Labor Income	12319.4	15237.3	16667.4	14077.25

CONCLUSIONS

The study shows that the production and marketing of Pearl millet Jaipur of the study is to analyze, socio economic characteristic of sample respondents, economics of Pearl millet production, price spread and constraints in production and marketing of Pearl millet. The results revealing that the socio economic status of the respondents found to be moderate with primary education, well economic back ground and greater access to all the assets. Economics of Pearl millet production is more profitable in large farms as compared to medium size farms and small size farms. The study indicated that there is scope to increase the producer's share in consumer's rupee by making the market more effective so that the number of intermediaries is to be restricted and marketing costs and marketing margins to be reduced. This will be the way for making Pearl millet cultivation more lucrative. Major constraints in production was found that high cost of labor and less awareness about new technologies among different farms size group followed by a huge price fluctuation was the major marketing constraint in Pearl millet.

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